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PREVENTION OF SIGNIFICANT DETERIORATION PERMIT ISSUED PURSUANT TO THE REQUIREMENTS AT 40 CFR § 52.21

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION IX

PSD PERMIT NUMBER: NSR 4-4-4, SAC 03-01

PERMITTEE: Knauf Insulation GmbH
240 Elizabeth Street
Shelbyville, Indiana 46176

FACILITY LOCATION: 3100 District Drive
Shasta Lake, California 96019

This revised Permit is issued pursuant to the Prevention of Significant Deterioration (PSD) requirements of the Clean Air Act, as amended, 42 U.S.C. §§ 7401 - 7671, et seq. Knauf Insulation GmbH (Knauf) is granted this revised PSD Permit as described herein, in accordance with the permit application (and plans submitted with the permit application), federal regulations governing the Prevention of Significant Deterioration of air quality (40 CFR § 52.21), and other terms and conditions set forth in this revised PSD Permit.

Failure to comply with any condition or term set forth in this revised PSD Permit is subject to enforcement action pursuant to Section 113 of the Clean Air Act.

This revised PSD Permit does not relieve the Permittee from the responsibility to comply with any other applicable provisions of the Clean Air Act and other federal or Shasta County Air Quality Management District requirements.

Date

Deborah Jordon
Director, Air Division

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Abbreviations and Acronyms

Amps	Ampere
ACFM	Actual cubic feet per minute
BACT	Best Available Control Technology
CEM	Continuous Emission Monitoring
CFR	Code of Federal Regulations
CMS	Continuous Monitoring System
CO	Carbon monoxide
EPA	United States Environmental Protection Agency, Region IX
°F	degrees Fahrenheit
g	grams
gph	gallons per hour
GPM	gallons per minute
HAP	Hazardous Air Pollutant
in H ₂ O	inches of water
hr	hour
kg	kilogram
kV	kilovolt
kW	kilowatt
lb	pound
min	Minute
NO _x	Nitrogen Oxides
NO ₂	Nitrogen Dioxide
NSPS	New Source Performance Standard
NSR	New Source Review
Permittee	Knauf Insulation, GmbH
PM	Particulate Matter
PM10	Particulate matter less than 10 microns in diameter
ppm	parts per million
PSD	Prevention of Significant Deterioration
psia	pounds per square inch absolute
SO ₂	Sulfur Dioxide
tpd	tons of glass produced or pulled per operating day
TSP	Total suspended particulate
VOC	Volatile organic compounds

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PROJECT DESCRIPTION

This PSD permit is an amendment to the PSD permit issued on March 14, 2000, to the Knauf Insulation facility located in Shasta Lake, California. This permit applies Best Available Control Technology (BACT) emission standards for minimizing PM10 and NOx emissions during the fiberglass manufacturing operations at Knauf. The fiberglass operations consist of the following: (1) raw materials handling and mixing; (2) molten glass production; (3) glass fiber forming, curing, and cooling; and (4) fiberglass trimming and packaging.

The raw materials handling and mixing operations consist of storage bins and tanks that are used to store materials which are used to produce the fiberglass insulation. Emissions from this operation consist primarily of particulate matter, which are captured in dust collectors within the facility and are not vented to the outside air. Molten glass production is achieved using an electric glass melting furnace that has a capacity which is limited by this permit to 225 tons per day (tpd). Emissions from the furnace are vented to the Furnace Stack. The forming, curing, and cooling operations make up the manufacturing line where emissions are vented to the Main Stack. Emissions from the fiberglass trimming and packaging operations are also captured in dust collectors which are vented within the facility and not to the outside air.

EQUIPMENT LIST

Raw Materials Handling and Mixing

One (1) Raw Material Unloading Dust Collector	One (1) Day Bin #1 Dust Collector
One (1) Sand Bins Dust Collector	One (1) Day Bin #2 Dust Collector
One (1) Consumer Cullet Bin Dust Collector	One (1) Liquid Urea Tank
One (1) Dolomite Bin Dust Collector	Two (2) Phenolic Resin Tanks
One (1) Limestone Bin Dust Collector	Two (2) Resin-Urea Premix Tanks
One (1) (Spare) Bin Dust Collector	One (1) Outdoor Mineral Oil Tank
One (1) Borax Bin Dust Collector	One (1) Outdoor Aqueous Ammonia Tank
One (1) Soda Ash Bin Dust Collector	Two (2) Ammonium Sulfate Mix Tanks
One (1) Feldspar Bin Dust Collector	One (1) Organosilane Weigh Tank
One (1) Knauf Cullet Dust Collector	One (1) Binder Mix Tank
One (1) Weigh Scales/Conveyor Dust Collector	Two (2) Binder Supply Hold Tanks
One (1) Check Scale/Batch Mixer Dust Collector	

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Molten Glass Production

225 Tons/Day Molten Glass Production Electric Glass Melting Furnace
Two (2) ea. 7681 DSCFM, GMD Pulse Jet Dust Collectors (Mod.2-169-10-6RA)
Two (2) 15 MMBtu North American Burner Systems (Model 8520)
One Marley NC Series Cooling Tower, Serial No. 169921-001

Fiberglass Forming/Curing/Cooling

One (1) Natural Gas-Fired Forming Section
One (1) Natural Gas-Fired Curing Oven w/ low NOx Burners
One (1) Volatile Organic Compound Binder Application Process
Six (6) 10" P Venturi Scrubbers on Bonded Wool Forming Line
One (1) 10" P Venturi Scrubber on Blowing Wool Forming Line
One (1) 400,000 ACFM, 600 GPM Wet Electrostatic Precipitator
Two (2) 1400°F Thermal Oxidizers (with low NOx/CO Burners) on Curing Oven
One (1) Settling Chamber/Air Washer on Cooling Line

Fiberglass Trimming and Packaging

One (1) 9874 ACFM Trimming-Packaging Cyclone (1) & Dust Collector Assembly
One (1) 9874 ACFM Class B Blowing Wool Cyclones (2) & Dust Collector Assembly
One (1) 15,708 ACFM Class A Blowing Wool Cyclone (1) & Dust Collector Assembly
One (1) 15,708 ACFM Class A Blowing Wool Bagger Dust Collector Assembly
Four (4) High Density Filter Modules

GENERAL PERMIT CONDITIONS

1. Permit Notification Requirements:

The Permittee shall notify EPA in writing or by electronic mail of the date upon which initial performance tests will commence, in accordance with the provisions of this PSD Permit, postmarked not less than 30 days prior to such date. Notification may be provided with the submittal of the performance test protocol(s) required in this PSD permit.

2. Facility Operation:

- a. At all times, including periods of startup, shutdown and malfunction, the Permittee shall, maintain and operate the facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on

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information available to the EPA which may include, but is not limited to, performance tests, monitoring results, review of operating maintenance procedures and inspection of the source.

- b. The operating staff with management authority at this facility shall be advised of and be familiar with all the conditions of this PSD permit.

3. Malfunction Reporting:

- a. The Permittee shall notify EPA by telephone, facsimile, or electronic mail at r9.aeo@epa.gov within two (2) working days following the discovery of any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner, which results in an increase in emissions above the allowable emission limits stated in Conditions 22 and 40 of this Permit.
- b. In addition, the Permittee shall notify EPA in writing or electronic mail within fifteen (15) days of any such failure described under Condition 3.a. of this PSD Permit. The notification shall include a description of the malfunctioning equipment or abnormal operation, the date of the initial malfunction, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of the emission limitations contained in this PSD permit, and the methods utilized to mitigate emissions and restore normal operations.
- c. Compliance with this malfunction notification provision shall not excuse or otherwise constitute a defense to any violation of this permit or any law or regulation such malfunction may cause.

4. Right of Entry:

The EPA Regional Administrator, and/or an authorized representative, upon the presentation of credentials, shall be permitted:

- a. To enter the premises where the source is located or where any records are required to be kept under the terms and conditions of this PSD Permit; and
- b. At reasonable times to have access to and to copy any records required to be kept under the terms and conditions of this PSD Permit; and
- c. To inspect any equipment, operation, or method subject to requirements in this

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PSD Permit; and

d. To sample emissions from any and all emission sources within the facility.

5. Transfer of Ownership:

In the event of any changes in control or ownership of the facilities to be constructed and operated, this PSD Permit shall be binding on all subsequent owners and operators. Within fifteen (15) days of the change in control or ownership, the Permittee shall notify the succeeding owner and operator of the existence of this PSD Permit and its conditions by letter, a copy of which shall be forwarded to EPA.

6. Severability:

The provisions of this PSD Permit are severable, and, if any provision of the PSD Permit is held invalid, the remainder of this PSD Permit shall not be affected.

7. New Source Performance Standards:

The Permittee is subject to the federal regulations entitled Standards of Performance for New Stationary Source (40 CFR Part 60). The owner or operator shall meet all applicable requirements of the General Provisions pursuant to 40 CFR Part 60, Subpart A, the Standard of Performance for Volatile Organic Liquid Storage Vessels pursuant to 40 CFR Part 60, Subpart Kb, and the Standard of Performance for Wool Fiberglass Insulation Manufacturing Plants pursuant to 40 CFR Part 60, Subpart PPP.

8. Other Applicable Regulations:

The Permittee shall construct and operate the stationary source in compliance with all other applicable provisions of 40 CFR Parts 52, 60, 61, and 63 and all other applicable federal, state and local air quality regulations.

9. Paperwork Reduction Act:

Any requirements established by this PSD Permit for the gathering and reporting of information are not subject to review by the Office of Management and Budget (OMB) under the Paperwork Reduction Act because this permit is not an "information collection request" within the meaning of 44 U.S.C. §§ 3502(4), 3502 (11), 3507, 3512, and 3518. Furthermore, this PSD Permit and any information gathering and reporting requirements established by this permit are exempt from OMB review under the Paperwork Reduction

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Act because it is directed to fewer than ten persons. 44 U.S.C. § 3502(4) and § 3502(11); 5 CFR § 1320.5(a).

10. Recordkeeping:

Failure to monitor, record information, and maintain records according to the following conditions will be considered a violation of the applicable emission standards. All records and emission test results requested to be kept under the terms and conditions of this PSD Permit shall be retained for at least five years from the date the record was created and be made available to the EPA upon request.

11. Agency Notification:

- a. Unless otherwise directed by the EPA or this permit, the owner or operator shall submit a copy of all test plans, reports, certifications, notifications, and other information pertaining to compliance with this permit to:

Director, Air Division (Attn: AIR-5)
U. S. Environmental Protection Agency Region IX
75 Hawthorne Street
San Francisco, CA 94105-3901

- b. The owner or operator shall submit permit applications, permit amendments, and other applicable permit information, which includes but not limited to installation of control equipment, replacement of an emissions unit, and changes that contravene permit terms, to:

Director, Air Division (Attn: AIR-3)
U. S. Environmental Protection Agency Region IX
75 Hawthorne Street
San Francisco, CA 94105

- c. Copies of all correspondence required by this PSD Permit shall be forwarded to:

Air Pollution Control Officer
Air Quality Management District
Shasta County Department of Resource Management
1855 Placer Street, Suite 200
Redding, CA 96001

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RAW MATERIAL HANDLING & MIXING OPERATING CONDITIONS

12. All of the material handling vents and tank vents that discharge into the interior of the batch plant building shall be controlled by twelve (12) baghouse dust collectors that shall prevent any and all particulate matter emissions from escaping the facility. The dust collectors shall be equipped with bag leak detectors which shall be maintained, continuously operated, and calibrated on a regular basis as recommended by the manufacturer to assure reliability. The bag leak detectors shall be equipped with an audible alarm which shall sound automatically in the control room to indicate a torn or leaking bag. Spare bags shall be kept on site for immediate replacement of leaking or torn bags. The Permittee must initiate corrective action within 1 hour of an alarm from the bag leak detection system and complete corrective actions immediately. The corrective action may include any one or combination of the following actions:
 - a. Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other conditions that may cause an increase in emissions;
 - b. Sealing off defective bags or filter media;
 - c. Replacing defective bags or filter media, or otherwise repairing the control device;
 - d. Sealing off a defective baghouse compartment;
 - e. Cleaning the bag leak detection system probe, or otherwise repairing the bag leak detection system; and
 - f. Shutting down the process producing the particulate emissions;
13. The Permittee shall retain records of (a) each occurrence of the alarm for the bag leak detection system, (b) the corrective action(s) taken for each occurrence of the alarm, and (c) the duration for completing each corrective action(s).
14. Day Bin #1 and #2 dust collector emissions in the furnace building shall be discharged through the forming section exhausts and be controlled by the forming line scrubbers and wet electrostatic precipitator. Emissions from these dust collectors shall be measured as emissions from the forming line.

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15. All railcar and bottom-dump hopper truck unloading of raw materials shall be done with a “dust boot” that seals the gap between the discharge of the hopper and the delivery system. The dust collectors on the material handling system shall be operational whenever materials are being delivered and shall prevent any and all particulate matter emissions from escaping the batch plant.
16. The Permittee shall submit a written report of the following actions on a semi-annual basis: (a) each occurrence of the alarm for the bag leak detection system, (b) the corrective action(s) taken for each occurrence of the alarm, and (c) the duration for completing each corrective action(s). The report shall be submitted to EPA and is due on the 30th day following the end of each semi-annual period after the effective date of this permit.

MOLTEN GLASS PRODUCTION OPERATING CONDITIONS

17. The glass melting furnace shall be heated only by electricity. No other auxiliary fuels may be used except during cold startup of the melting furnace or during prolonged electrical outages beyond the control of the facility when portable natural gas burners may be used to bring the temperature of the refractory and raw materials up to operating temperature. The Permittee shall notify the EPA of the intended use of the portable burners at least 24 hours prior to use. The Permittee shall retain records of the periods when portable burners are used and the amount of fuel used.
18. Molten glass production from the glass melting furnace shall be limited to a total of 225 tons in any rolling 24-hour period. A permanent record of daily production shall be maintained and shall be available for inspection by the EPA.
19. The method of control of particulate matter from the glass melting furnace shall be the use of two baghouse dust collectors capable of meeting the emission standards specified in condition 22 of this permit. The dust collectors shall be equipped with bag leak detectors which shall be maintained, continuously operated, and calibrated on a regular basis as recommended by the manufacturer to assure reliability. The bag leak detectors shall be equipped with an audible alarm which shall sound automatically in the control room to indicate a torn or leaking bag. Spare bags shall be kept on site for immediate replacement of leaking or torn bags. The Permittee must initiate corrective action within 1 hour of an alarm from the bag leak detection system and complete corrective actions immediately. The corrective action may include any one or combination of the following actions:
 - a. Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any

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- other conditions that may cause an increase in emissions;
- b. Sealing off defective bags or filter media;
 - c. Replacing defective bags or filter media, or otherwise repairing the control device;
 - d. Sealing off a defective baghouse compartment;
 - e. Cleaning the bag leak detection system probe, or otherwise repairing the bag leak detection system; and
 - f. Shutting down the process producing the particulate emissions;
20. The Permittee shall retain records of (a) each occurrence of the alarm for the bag leak detection system, (b) the corrective action(s) taken for each occurrence of the alarm, and (c) the duration for completing each corrective action(s).
21. The Permittee shall install, and thereafter continuously operate and maintain the following air pollution controls capable of meeting the emission standards in Condition 22 of this permit:
- a. Use of two (2) baghouse dust collectors; and
 - b. Use of an all electric glass melting furnace.
22. PM10 emissions (filterable and condensable) from the Furnace Stack of the combined baghouse discharge exhausts from the glass melting furnace shall not exceed the following emission limitations:
- a. 0.67 lb/hr and 0.07 lb/ton of glass pulled, based on a 3-hour rolling average; and
 - b. 2.2 tons per year, based on a 12-month rolling sum.
23. The Permittee shall record hours of operation of the glass melting furnace on a daily basis and shall install, calibrate, and maintain the following continuous monitors. The Permittee shall retain records of the hourly glass pull rate.
- a. A continuous glass pull (production) rate monitor that records glass pull (production) rate on an hourly basis; and

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- b. A continuous dust collector bag leak detection system that records relative particulate matter emissions.
- 24. The opacity from the above stack shall not exceed 5 percent opacity for a period greater than three (3) minutes in any one (1) hour period. An audible alarm shall sound in the control room to indicate an opacity exceeding the above opacity limit.
- 25. The Permittee shall install, and continuously operate and maintain a stack gas opacity monitor on the stack combining the baghouse discharge exhausts from the glass melting furnace. The continuous opacity monitor shall meet all applicable design and quality assurance requirements specified in 40 CFR 60.13 and 40 CFR Part 60, Specification 1 of Appendix B. A computer data acquisition system which has the capability of interpreting the sampling data, providing a graphical trend analysis, and producing a summary report of all three (3) minute averages of opacity readings shall also be provided.
- 26. The Permittee shall conduct performance testing annually. Annual performance testing shall be performed within 30 days after the anniversary of the most recent performance test. The Permittee shall conduct performance tests (as described in 40 CFR 60.8) for PM10 (as TSP) on the stack receiving the combined dust collector exhausts from the glass melting furnace (Furnace Stack). The Permittee shall retain records of performance test measurements.
- 27. Performance tests shall be conducted in accordance with CARB Methods 1 through 5 (including filter and impinger catch) for PM10 (as TSP).
- 28. The Permittee shall submit a performance test protocol to EPA no later than 45 days prior to the test to allow review of the test plan and to arrange for an observer to be present at the test. The performance test protocol shall be amended if required by EPA. The performance test shall be conducted in accordance with the submitted protocol, and any changes required by EPA. In lieu of the above mentioned test methods, equivalent methods may be used with prior written approval from EPA.
- 29. Performance tests shall be performed by an independent testing firm. Performance tests shall be at least performed at or greater than 95 percent of the maximum operating capacity of 225 tons of molten glass produced in any rolling 24-hour period. The Permittee shall furnish EPA with a written report of the results of such tests within thirty (30) days after the performance tests are conducted.
- 30. For performance test purposes, the Permittee shall provide sampling ports, platforms and

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access on the emission unit exhaust system in accordance with the requirements of 40 CFR 60.8(e).

31. The annual performance test results shall include a calculation of the PM10 (as TSP) actual emission factor (in units of lb PM10/ton glass pulled) for the glass melting furnace. The Permittee shall use the hourly emission rate determined from the most recent annual performance test and the actual glass production rate in tons of glass pulled per hour (averaged over the performance test runs) to calculate a PM10 emission factor in units of lb PM10/ton glass pulled. The Permittee shall use this calculated PM10 emission factor to determine compliance with the lb/ton BACT emission limit for the glass melting furnace (Furnace Stack) in Condition 22 of this permit. The Permittee shall retain records of all calculations and measurements.
32. The Permittee shall determine compliance with the lb/hr emission limit for PM10 (as TSP) in Condition 22 of this permit on an hourly basis. The lb/hr emissions shall be calculated on an hourly basis using the PM10 emission factor determined from the most recent performance test according to Condition 31 and the actual glass pull rate for each hour. The Permittee shall use the PM10 emission factor determined from the most recent performance test until a new emission factor is calculated based on the next performance test. The new emission factor shall be determined and used within 60 days after each performance test. The Permittee shall retain records of all calculations and measurements.
33. The Permittee shall submit a written report of all excess emissions and monitoring systems performance to EPA in accordance with 40 CFR 60.7 (c) and (d) on a semiannual basis. The report is due on the 30th day following the end of each semiannual period after the effective date of this permit. Excess emissions shall be defined as any opacity level exceeding the opacity limitation in Condition 24 of this permit. Excess emissions shall be considered violations of the applicable emission limits for the purposes of this permit.
34. The Permittee shall submit a written report of all excess emissions for Condition 22 of this permit in accordance with Conditions 31 and 32 of this permit for the Furnace Stack. Excess emissions shall be defined as any emissions exceeding the maximum emission limits set forth in Condition 22. The report shall be submitted to EPA semi-annually and is due on the 30th day following the end of each semi-annual period after the effective date of this permit. Excess emissions shall be considered violations of the applicable emission limits for the purposes of this permit.
35. The Permittee shall submit a written report of the following actions on a semi-annual

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basis: (a) each occurrence of the alarm for the bag leak detection system, (b) the corrective action(s) taken for each occurrence of the alarm, and (c) the duration for completing each corrective action(s). The report shall be submitted to EPA and is due on the 30th day following the end of each semi-annual period after the effective date of this permit.

36. Upon prior written request and adequate justification from the Permittee, EPA may waive the annual test and/or allow for testing to be done at less than 95 percent of the maximum operating capacity of 225 tons of molten glass produced in any rolling 24-hour period. EPA approval shall be in writing. Such request must be submitted to EPA no later than 60 days prior to the annual test date.

FIBERGLASS FORMING/CURING/COOLING OPERATING CONDITIONS

37. Natural gas shall constitute the only fuel allowed for use in the forming and curing operations.
38. Molten glass feed rate to the forming line shall be limited to a total of 225 tons in any rolling 24-hour period. The Permittee shall maintain a log indicating the throughput of molten glass material in tons/day. The log shall be available for inspection at any time by the EPA.
39. The Permittee shall install, and thereafter continuously operate whenever fiberglass is being produced, and maintain the following air pollution control technologies capable of meeting the emission limitations specified in Condition 40 of this permit:
- a. Forming Sections: Use of combustion controls which minimize peak flame temperatures in the fiber forming process for control of NO_x. Use of six (6) venturi scrubbers on the bonded wool forming line and one (1) venturi scrubber on the unbonded wool forming line (each with a minimum of 10" wc pressure drop), followed by a wet electrostatic precipitator with continuous water spray wash system and four (4) electrical fields (minimum) for the control of particulate matter.
 - b. Curing Section: Use of low NO_x burners burning natural gas for the control of NO_x. Use of two thermal oxidizers operating in parallel with a minimum temperature of 1400°F and a residence time of at least 0.5 second for the control of VOC and particulate matter. (A lower minimum operating temperature, not less than 1200°F, may be used for the thermal oxidizers if, through emission testing, it is demonstrated to the satisfaction of the EPA that the lower

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temperature offers an equivalent emission control of VOC and particulate matter as provided by the 1400°F minimum temperature.)

- c. Cooling Section: Use of a water-washed settling chamber for the control of particulate matter and VOC with exhaust immediately combined with high-temperature exhaust of the thermal oxidizers.
40. Emissions from the Main Stack of the forming/curing/cooling (manufacturing line) operations shall not exceed the following emission limitations:
- a. NOx - 16.5 lb/hr and 1.76 lb/ton of glass pulled, based on a 3-hour rolling average.
 - b. PM10 - 28.4 lb/hr and 3.03 lb/ton of glass pulled, based on a 3-hour rolling average.
41. The opacity of the Main Stack exhaust, excluding condensed water vapor, shall not exceed 20 percent for a period greater than three (3) minutes in any one (1) hour period. An audible alarm shall sound in the control room to indicate an opacity exceeding the above opacity limit.
42. The Permittee shall continuously operate and maintain the venturi scrubbers for the removal of suspended particulate matter and for the pretreatment of the gas upstream of the wet electrostatic precipitator. The scrubbers shall maintain a minimum gas pressure drop of 10 inches water across the venturi throat and a minimum water flow to each scrubber of 200 gal/min. The pressure drop and water flow parameters shall be measured and recorded continuously. The solids in the scrubber water shall be removed to the extent necessary and fresh make-up water added at all times of operation.
43. The Permittee shall continuously operate and maintain a wet electrostatic precipitator for the control of suspended particulate matter from the outlet of the forming zone venturi scrubbers. The wet electrostatic precipitator shall maintain a minimum water flow and a minimum total corona power as established during initial emission testing to determine compliance with 40 CFR 60, Subpart PPP.
44. The Permittee shall install, calibrate, maintain, and operate monitoring devices that measure the following parameters at the frequency and accuracy as noted in Table 1. All monitoring devices required for measuring the parameters in Table 1 are to be recalibrated quarterly in accordance with procedures under Section 60.13(b) of 40 CFR 60.

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Table 1

Parameters	Recording Frequency	Accuracy
Gas pressure drop across each scrubber (in.H ₂ O)	Continuous	±1" WC
Inlet water flow rate to each scrubber (GPM)	Continuous	±5% over range
Wet Electrostatic Precipitator inlet water flowrate (GPM)	Every 15 minutes	±5% over range
Wet Electrostatic Precipitator: Secondary current (Amps.) Secondary voltage (kV) Spark rate Corona power/T-R set per field Inlet temp. (°F)	Every 15 minutes	±5% over range
Thermal Oxidizer: Exhaust temperature	Continuous	±5% over range
Settling Chamber water flow rate (gph)	Every 15 minutes	±5% over range

45. For performance test purposes, the Permittee shall provide sampling ports, platforms and access on the emission unit exhaust system in accordance with the requirements of 40 CFR 60.8(e).
46. Four sampling ports must be provided on the Main Stack (located on the same horizontal plane, 90 degrees apart, and at least two (2) duct diameters downstream, and one-half (1/2) duct diameters upstream of any flow disturbance) and shall consist of 4-inch female NPT couplings welded to the stack. The couplings shall be supplied with 4-inch pipe plugs. A sampling platform shall also be installed on the Main Stack.
47. Sampling ports must be provided on the inlet and outlet of the wet electrostatic precipitator, and on the outlets of the thermal oxidizers for the purpose of determining emission control efficiency. A sampling platform or other means of providing safe access to the sampling ports shall be installed.

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Table 2

Test Location	PM10 (as TSP)	NOx (as NO₂)
Main Stack	Yes	Yes
wet ESP exhaust	Yes	No
wet ESP inlet	Yes	No

48. The Permittee shall conduct performance testing annually. Annual performance testing shall be performed within 30 days after the anniversary of the most recent performance test. The Permittee shall conduct performance tests (as described in 40 CFR 60.8) for the NOx and PM10 emission limitations that apply to the Main Stack. The Permittee shall retain records of all performance tests measurements.
49. Performance tests shall be conducted in accordance with EPA Test Methods 1 through 4 and EPA Test Method 7E for NOx (as NO₂), and EPA Test Method 5E for PM10 (as TSP).
50. The Permittee shall submit a performance test protocol to EPA no later than 45 days prior to the test to allow review of the test plan and to arrange for an observer to be present at the test. The performance test protocol shall be amended if required by EPA. The performance test shall be conducted in accordance with the submitted protocol, and any changes required by EPA. In lieu of the above mentioned test methods, equivalent methods may be used with prior written approval from EPA.
51. Performance tests shall be performed by an independent testing firm. Performance tests shall be at least performed at or greater than 95 percent of the maximum operating capacity of 225 tons of molten glass produced in any rolling 24-hour period. The Permittee shall furnish EPA with a written report of the results of such tests within thirty (30) days after the performance tests are conducted.
52. The annual performance test results shall include a calculation of the actual emission factors for NOx and PM10 (as TSP) in units of lb NOx/ton glass pulled and lb PM10/ton glass pulled, respectively, for the forming/curing/cooling operation (Main Stack). The Permittee shall use the hourly emission rates determined from the most recent annual performance tests and the actual glass production rate in tons of glass pulled per hour (averaged over the performance test runs) to calculate a NOx and PM10 emission factors in units of lb NOx/ton glass pulled and lb PM10/ton glass pulled, respectively. The Permittee shall use the calculated NOx and PM10 emission factors to determine compliance with the lb/ton BACT emission limits for the forming/curing/cooling

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operation (Main Stack) in Condition 40 of this permit. The Permittee shall retain records of all calculations and measurements.

53. The Permittee shall determine compliance with the lb/hr emission limits for NO_x and PM₁₀ (as TSP) in Condition 40 of this permit on an hourly basis. The lb/hr emissions shall be calculated on an hourly basis using the NO_x and PM₁₀ emission factors determined from the most recent performance test according to Condition 52 and the actual glass pull rate for each hour. The Permittee shall use the NO_x and PM₁₀ emission factors determined from the most recent performance test until a new emission factor is calculated based on the next performance test. The new emission factor shall be determined and used within 60 days after each performance test. The Permittee shall retain records of all calculations and measurements.
54. The Permittee shall submit a written report of all excess emissions and monitoring systems performance to EPA in accordance with 40 CFR 60.7 (c) and (d) on a semiannual basis. The report is due on the 30th day following the end of each semiannual period after the effective date of this permit. Excess emissions shall be defined as any opacity level exceeding the opacity limitation in Condition 41 of this permit. Excess emissions shall be considered violations of the applicable emission limits for the purposes of this permit.
55. The Permittee shall submit a written report of all excess emissions for Condition 40 of this permit in accordance with Conditions 52 and 53 of this permit for the forming/curing/cooling operation (Main Stack). Excess emissions shall be defined as any emissions exceeding the maximum emission limits set forth in Condition 20. The report shall be submitted to EPA semi-annually and is due on the 30th day following the end of each semi-annual period after the effective date of this permit. Excess emissions shall be considered violations of the applicable emission limits for the purposes of this permit.
56. The Permittee shall submit a written report of the following actions on a semiannual basis for the leak bag detection system: (a) each occurrence of the alarm for the bag leak detection system, (b) the corrective action(s) taken for each occurrence of the alarm, and (c) the duration for completing each corrective action(s).
57. The Permittee shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by 40 CFR Part 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least five (5)

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years following the date of such measurements, maintenance, reports and records.

58. Upon prior written request and adequate justification from the Permittee, EPA may waive the annual test and/or allow for testing to be done at less than 95 percent of the maximum operating capacity of 225 tons of molten glass produced in any rolling 24-hour period. EPA approval shall be in writing. Such request must be submitted to EPA no later than 60 days prior to the annual test date.

FIBERGLASS TRIMMING & PACKAGING OPERATING CONDITIONS

59. The method of control of particulate matter from the bonded wool forming line trimming and packaging areas, the Class A unbonded blowing wool processing area, and the Class B blowing wool processing area of the plant shall be the use of four (4) dust collector assemblies each followed by a high density filter module which shall exhaust inside the Scrap Building and have no outside vent.
60. The dust collectors shall be equipped with bag leak detectors which shall be maintained, continuously operated, and calibrated on a regular basis as recommended by the manufacturer to assure reliability. The filter modules shall be equipped with differential pressure measuring devices for daily monitoring and recording of the pressure drop across each filter bank.
61. The bag leak detectors shall be equipped with an audible alarm which shall sound automatically in the control room to indicate a torn or leaking bag. Spare bags shall be kept on site for immediate replacement of leaking or torn bags. The Permittee must initiate corrective action within 1 hour of an alarm from the bag leak detection system and complete corrective actions immediately. The corrective action may include any one or combination of the following actions:
 - a. Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other conditions that may cause an increase in emissions;
 - b. Sealing off defective bags or filter media;
 - c. Replacing defective bags or filter media, or otherwise repairing the control device;
 - d. Sealing off a defective baghouse compartment;
 - e. Cleaning the bag leak detection system probe, or otherwise repairing the bag leak

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detection system; and

- f. Shutting down the process producing the particulate emissions;
62. The Permittee shall retain records of (a) each occurrence of the alarm for the bag leak detection system, (b) the corrective action(s) taken for each occurrence of the alarm, and (c) the duration for completing each corrective action(s).
63. The Permittee shall monitor and retain records of the following parameters on a daily basis:
- a. Hours of operation
 - b. Production rates
 - c. Leaks from the dust collectors
 - d. Pressure drop across the filter modules
64. The Permittee shall submit a written report of the following actions on a semi-annual basis for the leak bag detection system: (a) each occurrence of the alarm for the bag leak detection system, (b) the corrective action(s) taken for each occurrence of the alarm, and (c) the duration for completing each corrective action(s). The report shall be submitted to EPA and is due on the 30th day following the end of each semi-annual period after the effective date of this permit.